

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/JP2004/018410

**A. CLASSIFICATION OF SUBJECT MATTER**

Int.Cl<sup>7</sup> C12Q1/26, C12N9/99, C12N15/09, G01N33/15, G01N33/50

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl<sup>7</sup> C12Q1/26, C12N9/99, C12N15/09, G01N33/15, G01N33/50

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

SwissProt/PIR/Geneseq, GenBank/EMBL/DDBJ/Geneseq,  
WPI(DIALOG), BIOSIS(DIALOG), JSTPlus(JOIS), MEDLINE(STN)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Kunst, C.B. et al., Mutations in SOD1 associated with amyotrophic lateral sclerosis cause novel protein interactions. Nature Genetics, Vol.15(1), pages 91 to 94 (1997)	1, 4, 9
Y	NIWA, J. et al., Dorfin ubiquitylates mutant SOD1 and prevents mutant SOD1-mediated neurotoxicity. J.Biol.Chem., Vol.277(39), pages 36793 to 36798 (2002)	3, 4, 5, 6, 9
Y	JP 2003-135063 A (Chiba-Ken), 13 May, 2003 (13.05.03), & WO 03/018842 A1 & EP 1428891 A1	3, 4, 5, 6, 9

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search  
04 February, 2005 (04.02.05)

Date of mailing of the international search report  
22 February, 2005 (22.02.05)

Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

Faxsimile No.

Telephone No.

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**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: 7, 8  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Although the inhibitors as set forth in claims 7 and 8 involve any substances inhibiting the interactions between a mutant SOD1 and NEDL1 and/or its substrate (TRAPδ or Dv11), no substance having this function is specifically and comprehensively presented in the description. (continued to extra sheet)
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

As reported in the following documents 1 and 2, it had been publicly known before the present application that familial ALS (FALS) is caused by a gene mutation in superoxide dismutase (SOD1) and the SOD1 mutant can be specifically detected by using ubiquitin ligase (Dorfin) or TRAPδ. Thus, it cannot be considered as a special technical feature in the meaning within PCT Rule 13.2 to diagnose FALS by using a mutant SOD1 as an indication.

Therefore, the inventions based on the ability of the mutant SOD1 to bind to TRAPδ, the inventions based on the ability of the mutant SOD1 to bind NEDL1 and the inventions based on the ability of the mutant SOD1 to bind to Dv11 cannot be considered as a group of inventions (continued to extra sheet)

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest.  
 No protest accompanied the payment of additional search fees.

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Continuation of Box No.II-2 of continuation of first sheet(2)

Thus, the inventions relating to the whole inhibitors are not supported by the description and the above claims are described in an extremely unclear manner.

Continuation of Box No.III of continuation of first sheet(2)

so linked as to form a single general inventive concept and it is recognized that claims of the present case has three groups of inventions.

Document 1: Nature Genetics, Vol.15(1), pp.91-94 (1997)

Document 2: J. Biol. Chem., Vol.277, No.39, pp.36793-36798 (2002)